Access Server 316
Hardware Owner's Manual

9032858

CABLETRON SYSTEMS

Notice

Cabletron Systems reserves the right to make changes in specifications and other information contained in this document without prior notice. The reader should in all cases consult Cabletron Systems to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

IN NO EVENT SHALL CABLETRON SYSTEMS BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS MANUAL OR THE INFORMATION CONTAINED IN IT, EVEN IF CABLETRON SYSTEMS HAS BEEN ADVISED OF, KNOWN, OR SHOULD HAVE KNOWN, THE POSSIBILITY OF SUCH DAMAGES.

© July 1999 by:

Cabletron Systems, Inc.
35 Industrial Way
Rochester, NH 03867

All Rights Reserved
Printed in the United States of America

Order Number: 9032858

Cabletron Systems is a registered trademark of Cabletron Systems, Inc.

DEC, **DEChub**, **DIGITAL**, and the **DIGITAL logo** are trademarks of Compaq Computers, Inc.

Ethernet is a trademark of Xerox Corporation.

All other trademarks or registered trademarks are the property of their respective holders.

FCC Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

VCCI Notice

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Industry Canada Notice

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Declaration of Conformity Addendum

Application of Council Directive(s):	**89/336/EEC** **73/23/EEC**
Manufacturer's Name:	**Cabletron Systems, Inc.**
Manufacturer's Address:	**35 Industrial Way** **PO Box 5005** **Rochester, NH 03867**
European Representative Name:	**Mr. J. Solari**
European Representative Address:	**Cabletron Systems Limited** **Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG13 2PZ, England**
Conformance to Directive(s)/Product Standards:	**EC Directive 89/336/EEC** **EC Directive 73/23/EEC** **EN 55022** **EN 50082-1** **EN 60950**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial or Light Industrial Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

Mr. Ronald Fotino	Mr. J. Solari
Full Name	Full Name
Principal Compliance Engineer	Managing Director - E.M.E.A.
Title	Title
Rochester, NH, USA	Newbury, Berkshire, England
Location	Location

Contents

Preface

Using This Guide vii
Intended Audience vii
Structure of This Guide vii
Document Conventions viii
Related Documentation viii
Getting Help ix

Chapter 1 Hardware Overview

Model 316 1-2
Controls, Indicators, and Connectors 1-2
Understanding the Software Loading 1-5
    Loading from Flash RAM 1-5
    Loading from the Network 1-5

Chapter 2 Checking the Site

Physical Requirements 2-2
Environmental Requirements 2-3
Electrical Requirements 2-4

Chapter 3 Cabling the Site

Preinstallation Checks 3-1
Installing the Ethernet Cables and Devices 3-2
Installing Serial Cables and Devices on the Access Server 316 3-2
Cabling Requirements 3-4
    Standard Ethernet Connection 3-5
    10BaseT Ethernet Connection 3-5
    ThinWire Ethernet Connection 3-5
Installing the Access Server 316 in a Rack 3-6
Installing the Access Server 316 on a Desktop 3-9

Chapter 4 Connector and Cable Pin Descriptions

Connector Pin Descriptions 4-1
Standard Ethernet 4-2
10BaseT Ethernet 4-3
Access Server 316 Serial Line Ports 4-4
Cable Connections 4-5
Cabling and Adapters Used with Access Server 316 4-6

Chapter 5 Replacing and Adding Memory

Swapping or Replacing an Access Server 316 Unit 5-1
Replacing a Faulty Single-In-Line Memory Module 5-2
Additional Memory Supported 5-10
Installing Extra Memory 5-11

Chapter 6 Replacing and Adding Flash RAM

Replacing or Adding Flash RAM 6-2

Chapter 7 What to Do If You Have Problems

Diagnosing Problems 7-2
Seven-Segment Display Off and System OK LED Off 7-3
System OK LED Off / Seven-Segment Display Flashing “C”, “d”, or “n” 7-3
System OK LED Off / Seven-Segment Display Flashing 7-4
System OK LED Flashing 7-4
Error Messages 7-4
Seven-Segment Display Shows a “3” 7-6
Downline Load Starts, Then Fails 7-6
Downline Load Does Not Start 7-7
Seven-Segment Display Codes 7-7
Network Activity LED 7-8

Preface

This manual describes how to use the Access Server 316. It also provides problem solving, connector and adapter, and pin assignment information.

Using This Guide

Read through this guide completely to understand the interface module features, capabilities, and Local Management functions. A general working knowledge of Ethernet and IEEE 802.3-type data communications networks and their physical layer components is helpful when using these devices.

Intended Audience

This manual is intended for use by the hardware installer. The installer is responsible for ensuring that the hardware is installed and tested. This manual shows how to install when the site is verified and the cables and devices are in place. It also shows how to verify the site, install cables and devices, and troubleshoot problems. The person installing the software can then verify the system installation.

Structure of This Guide

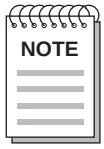
This guide is organized as follows:

Chapter	Title	Description
1	**Hardware Overview**	Outlines the contents of this manual, describes the features of the Access Server 316, provides instructions on obtaining additional help and concludes with a list of related manuals.
2	**Checking the Site**	Lists the physical, environmental, and electrical requirements.
3	**Cabling the Site**	Provides instructions on how to cable your site.
4	**Connector and Cable Pin Descriptions**	Shows the connector and pin assignments.

Chapter	Title	Description
5	**Replacing and Adding Memory**	Shows how to install extra memory and replace faulty memory.
6	**Replacing and Adding Flash RAM**	Shows how to update with flash RAM.
7	**What to Do If You Have Problems**	Describes what to do if you encounter a problem.

Document Conventions

Throughout this guide, the following symbols are used to call attention to important information.



***Note** symbol. Calls the reader's attention to any item of information that may be of special importance.*

***Caution** symbol. Contains information essential to avoid damage to the equipment.*

Related Documentation

The following documents may help the user to set up and manage the Network Access Server 316:

Title	Part Number
Network Access Server 316 Hardware Owner's Manual	9032858
Network Access Software Management Guide	9032859
Network Access Software Commands Reference Manual	9032860
Network Access Software Problem Solving Guide	9032861
Network Access Software Installation Guide	9032862

Title	Part Number
Cabletron RADIUS Server Installation Guide	9032863
Cabletron RADIUS Server Management Guide	9032864

The manuals referenced above can be viewed or printed from the CD-ROM included with the Access Server 316 or can be obtained on the World Wide Web in Adobe Acrobat Portable Document Format (PDF).

Getting Help

For additional support related to this device or document, contact Cabletron Systems using one of the following methods:

World Wide Web	http://www.cabletron.com/
Phone	(603) 332-9400
Internet mail	support@cabletron.com
FTP Login Password	ftp://ftp.cabletron.com/ *anonymous* *your email address*
To send comments or suggestions concerning this document, contact the Cabletron Systems Technical Writing Department via the following email address: **TechWriting@cabletron.com** *Make sure to include the document Part Number in the email message.*	

Before calling Cabletron Systems, have the following information ready:

- Your Cabletron Systems service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- The serial and revision numbers of all involved Cabletron Systems products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

Chapter 1

Hardware Overview

The Access Server 316 connects devices (such as printers, terminals, PCs, and modems) to local area networks (LANs). The Access Server 316 is Ethernet/IEEE 802.3-based and supports standard Ethernet/IEEE 802.3 and l0BaseT Ethernet/IEEE 802.3 directly, and ThinWire Ethernet/IEEE 802.3 through an adapter. The Access Server 316 can be installed on a desktop or in a 19-inch rack. The Access Server 316 supports Flash RAM capability and other nonvolatile forms of memory. The Access Server 316 is shipped with Flash RAM installed. Should the Flash RAM ever fail, it can be ordered separately and replaced on the Access Server 316.

The Access Server 316 can download the software image from the network or from the Flash RAM option. The Flash RAM option allows for a boot/powerup without having to download the image through the network. The Access Server 316 will support up to 8 Mbytes of memory with the use of two single-in-line modules (SIMs). These SIMs can be installed as memory updates by the customer.

This chapter includes the following topics:

- Model 316
- Controls, Indicators and Connectors
- Understanding the Software Loading

Model 316

The Access Server 316 supports TIA / EIA-423-B signal levels on 16 MJ8 connectors. Use the Access Server 316 to connect devices such as terminals, printers, modems, bar-code readers, or personal computers in terminal emulation mode. You can connect the Access Server 316 directly or, where required, using special adapters (see **Chapter 3)**.

NOTES

Adapter H8585-AB and H8585-AC are not for connection to public networks in Sweden, Germany, or Japan.

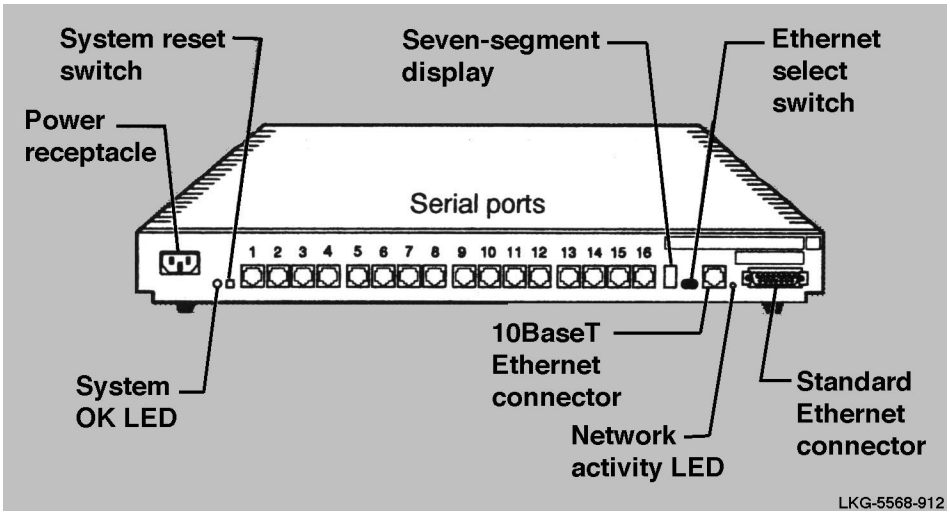


Figure 1-1. Access Server 316 Rear View

Controls, Indicators, and Connectors

All of the Access Server 316 controls, indicators, and connectors are located on the rear, as shown in Figure 1-1, with the exception of the System OK LED, which is duplicated on the front of the Access Server 316 (Figure 1-2).

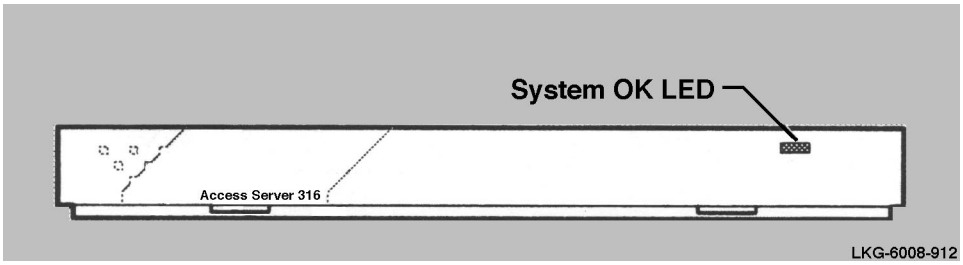


Figure 1-2. Access Server 316 Front View

Table 1-1 describes the Access Server 316 controls.

Table 1-1. Access Server 316 Controls

Control	Description
System reset switch	On power up, press this switch until E appears on the Seven-segment display. This reloads the factory set parameters. During Flash load (three horizontal segments of the Seven-segment LED), pressing and holding the system reset switch will abort the Flash RAM load and force a network boot. See **Chapter 7** for more information.
Ethernet select switch	This switch selects either standard or 10BaseT Ethernet.

Table 1-2 describes the indicators.

Table 1-2. Access Server 316 Indicators

Indicator	Display
System OK LED	Lights (green) when the Access Server 316 has passed self-test. Blinks when a nonfatal error occurs on self-test. When off, indicates that the Access Server 316 has failed self-test.
Network Activity LED	Refer to Table 1-3.
Seven-Segment Display	Provides error and status information.

Table 1-3 describes the LEDs.

Table 1-3. Network Activity LED

Ethernet Selected	Connection Status	LED Display
10BaseT	Open / incorrectly terminated	OFF
	Correctly terminated / no network activity	ON
	Correctly terminated / network activity	Flashing (rate independent of network activity).
Standard	Open on network activity	OFF
	Correctly connected / no network activity	OFF
	Correctly connected / network activity	Flashing or ON, depending on network activity.

Table 1-4 describes the connectors. For additional information on the connectors, refer to Chapter 4.

Table 1-4. Access Server 316 Connectors

Connector	Description
Serial port connectors	These 16 female MJ8 connectors connect asynchronous serial devices to the Access Server 316.
Standard Ethernet connector	This single 15-pin female D-connector connects to a standard Ethernet / IEEE 802.3 local area network using a transceiver cable.
10BaseT Ethernet connector	This single female MJ8 connector connects to a 10BaseT Ethernet / IEEE 802.3 local area network.
Power cord receptacle	The Access Server 316 power cord plugs into this receptacle.

Understanding the Software Loading

This section describes the two methods for loading software.

Loading from Flash RAM

Once the Access Server 316 completes self-tests, it checks for Flash RAM. If there is a valid Flash RAM, the Access Server 316 begins the boot sequence to load the software from Flash RAM. The Seven-segment display will display three horizontal segments during this Flash RAM loading phase.

If the Access Server 316 does not have Flash RAM, or if the name of the image in Flash RAM does not match the image name the Access Server 316 is attempting to load, it proceeds to a network load.

If a device is connected to the console port, the Access Server 316 can display status messages while the boot sequence is running. Status messages indicate the Ethernet address of the Access Server 316, the name of the load image it is looking for, and the current stage of the boot process.

Loading from the Network

If you do not want to load the software from Flash RAM, you can press the system reset switch during load from Flash RAM (three horizontal segments displayed on the Seven-segment display). When the system reset switch is pressed, the Flash RAM load will be aborted and the software is downline loaded from a load host.

When the Access Server 316 notices that the system reset switch depressed during a load from Flash RAM, it will rapidly blink the LED to acknowledge the pressed system reset switch (this may take several seconds). Once the LED begins rapidly blinking, you may release the system reset switch and the firmware will go on to a network boot sequence. For more information on display codes for Flash RAM (See section titled **Seven-Segment Display Codes** on page 7-7).

Chapter 2

Checking the Site

The Access Server 316 can operate in an office environment and in a standard equipment rack located in a computer room or satellite equipment room. Regardless of where you install the Access Server 316, verify that all of the requirements in this section are met before beginning the installation.

This chapter includes the following sections:

- Physical Requirements
- Environmental Requirements
- Electrical Requirements

Physical Requirements

Allow for 15 cm (6 in) of airspace around the Access Server 316 air vents. Table 2-1 shows the size and weight of the Access Server 316.

Table 2-1. Physical Specifications of the Access Server 316

Dimension	Measurement
Height	44 mm (1.73 in)
Width	442 mm (17.4 in)
Depth	282 mm (11.1 in)
Weight	2.5 kg (5.51 lbs)

Table 2-2 shows the acoustic parameters.

Table 2-2. Acoustical Parameters

Parameter	Measurement
LWAd[1]	4.1 bels (LWA = 3.8 bels)
Lpam (bystander)	27 dBA

1. Preliminary declared values per ISO 9296 and ISO 7779. Current values are available from respresentatives.

Environmental Requirements

Environmental requirements for temperature and humidity must be within the ranges shown in Table 2-3.

Table 2-3. Environmental Specifications of the Access Server 316

Parameter	Minimum	Maximum
Temperature[1]		
Operating	5° C (41° F)	50° C (122° F)
Nonoperating	- 40° C (- 40° F)	66° C (151° F)
Maximum rate of temperature change per hour		20° C (36° F)
Altitude		
Operating		2438 m (8000 ft)
Nonoperating		4876 m (16000 ft)
Relative Humidity		
Operating (noncondensing)	10%	95%
Nonoperating (noncondensing)	10%	95%

1. For high altitude sites, decrease the operating temperature specification by 1.8° C for each 1000 m (1° F for each 1000 ft) above sea level.

Electrical Requirements

The power at the electrical outlet must match the requirements shown in Table 2-4.

The instructions assume that an appropriate AC power source is within 1.8 m (6.0 ft) of Access Server 316.

Table 2-4. Electrical Requirements

Parameter	Access Server 316
Line voltage[1]	100–120 V rms / 220–240 V rms
Frequency	50 / 60 Hz
Line current	1.0 A rms / .5 A rms
Power	68W

1. The Access Server 316 automatically selects the voltage range.

Table 2-5 shows the electrical output from the standard Ethernet / IEEE 802.3 connector.

Table 2-5. Standard Ethernet/IEEE 802.3 Connector Output

Parameter	Access Server 316
Voltage	+ 12 V DC
Current	0.5 A Max

Chapter 3

Cabling the Site

This chapter shows you how to install the cables and associated devices used by the Access Server 316.

This chapter includes the following sections:

- Preinstallation Checks
- Installing the Ethernet Cables and Devices
- Installing Serial Cables and Devices on the Access Server 316
- Cabling Requirements
- Installing the Access Server 316 in a Rack
- Installing the Access Server 316 on a Desktop

Preinstallation Checks

Before beginning the Access Server 316 installation, use the following checklist to make sure that the site preparation is complete:

- Arrangements have been made to connect the Access Server 316 Ethernet port to an Ethernet interface device (if required).
- The Ethernet interface device is installed and the required cabling is in place, tested, and tagged.
- The rack-mount kit is installed (if required), as described in later in this chapter.
- Cables of appropriate length are available for connecting the Access Server 316 to the Ethernet interface device.
- The devices (terminals, modems, personal computers, hosts) are ready to be connected.

- Cables of appropriate length and type are available for connection of serial devices.
- One terminal (asynchronous TIA / EIA-423 or EIA / TIA-232-D compatible) is available for hardware testing and system verification.

Installing the Ethernet Cables and Devices

You can connect the Access Server 316 to:

- Standard Ethernet / IEEE 802.3 network
- lOBaseT Ethernet / IEEE 802.3 network
- ThinWire Ethernet / IEEE 802.3 network using an external media access unit (MAU)

Installing Serial Cables and Devices on the Access Server 316

The Access Server 316 can be configured by the software to support one of the two sets of signals. One set consists of:

- Clear to send (CTS)—This is the default setting.
- Request to send (RTS)—This is the default setting.
- Data set ready (DSR)—This is the default setting.
- Data terminal ready (DTR)—This is the default setting.

The second set consists of:

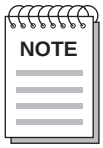
- Ring indicator (RI)
- Data signal rate selector (DSRS)
- Data carrier detect (DCD)
- Data terminal ready (DTR)

Before installing cables to the Access Server 316, you must find out which modem signals are supported from the person managing the Access Server 316. This information is necessary to determine which cables to use. For more information on the signals, refer to the *Network Access Software Management* guide.

Use the cables listed and described in the following table to connect to the 8-pin modular jacks on the serial communication lines of the Access Server 316.

Table 3-1. Cables and Adapters for the Access Server 316

Cable and Adapters	Description
BN25G MP8 to MP8 Equipment Cable	Use this 8-wire pin-to-pin cable to connect to H8585-xx series adapters.
BN24H MP8 to MMP6 (modified modular plug) Office Cable	Use this cable to connect to the 6-pin modified modular jack (MMJ) of H8575-xx series adapters or to a DEC-style printer or terminal.
H8575-A (EIA 423-B to EIA-232-D) Adapter	Use this adapter and the BN24H cable to connect to 25-pin D-sub male connectors (for example: printers).
H8575-B Adapter	Use this adapter and the BN24H cable to connect to 9-pin D-sub male connectors.
H8575-D (E1A423-B to EIA-232-D) Adapter	Use this adapter and the BN24H cable to connect to 25-pin D-sub female connectors.
H8585-AA MJ8 to DB9 (female) Null-Modem Adapter	Use this adapter with the BN25G cable to convert the Access Server 316 connector to DB9 (female) connector for cabling to PC asynchronous ports.
H8585-AB MJ8 to DB25 (male) Modem Adapter	Can be used with the BN25G cable to connect low speed modems to the Access Server 316. Refer to Chapter 4 for further information.
H8585-AC MJ8 to DB25 (male) Modem Adapter	Can be used with the BN25G cable to connect high speed modems to Access Server 316. Refer to Chapter 4 for further information.



Adapters H8585-AB and H8585-AC are not for connection to public networks in Sweden, Germany, or Japan.

Cabling Requirements

Table 3-2 shows the maximum communication distances for different types of cable used between the Access Server 316 and the Ethernet device. Table 3-3 shows the maximum cable lengths for a number of data rates using Access Server 316 supported line protocols.

The cabling requirements of the Access Server 316 are shown in the following sections.

Table 3-2. Maximum Communications Distances—Ethernet

From	To	Maximum Distance	Cable Type
Access Server 316	Transceiver	50 m (164 ft)	BNE3x-xx standard transceiver cable
Access Server 316	Transceiver	12.5 m (41 ft)	BNE4x-xx office transceiver cable
Access Server 316	Repeater	100 m (328 ft)	BN24Q cable (cross-over type) BN25G (straight-through type)

Table 3-3. Maximum Cable Lengths—Access Server 316 to Devices

Line Protocol	Data Rate (b/s)	Cable Length
EIA / TIA-432-A / V.10	4.8 K	500 m (1500 ft)
	9.6 K	280 m (900 ft)
	19.2 K	150 m (500 ft)
	38.4 K	85 m (280 ft)
	57.6 K	30 m (100 ft)
	115.2 K	12 m (40 ft)
EIA / TIA 423	9.6 K	900 m (3000 ft)
	19.2 K	300 m (1000 ft)
	38.4 K	150 m (500 ft)
	57.6 K	60 m (200 ft)
	115.2 K	30 m (100 ft)
EIA / TIA-232-E / V.28	9.6 K	60 m (200 ft)
	19.2 K	30 m (100 ft)
	38.4 K	15 m (50 ft)
	57.6 K	6 m (20 ft)
	115.2 K	3 m (10 ft)

Do not use structured building wiring or bundled type breakout cables at baud rates above 38.4 K. Separate point to point cables are recommended at baud rates above 38.4 K.

Standard Ethernet Connection

The transceiver cable must not exceed the maximum distances listed in Table 3-2.

10BaseT Ethernet Connection

The 10BaseT Ethernet installation must conform to the following configuration rules:

- The twisted-pair cable must not exceed the maximum distance listed in Table 3-2.
- No other signal should be used in the same cable sheath. For example, voice and data signals cannot be run within the same sheath.
- Unshielded twisted-pair cable must remain at least 30.48 cm (12 in) from any type of high-voltage power device or electrical noise source.

ThinWire Ethernet Connection

The ThinWire cable segment must conform to the following configuration rules:

- The maximum cable segment length must not exceed 185 m (606 ft).
- There must be a 50-ohm terminator at each end of the cable segment.
- There must be only one ground per cable segment.
- There must be at least 0.5 m (19 in) between T-connectors.
- The maximum number of stations, between terminators, must not exceed 30 stations.
- ThinWire cable segments must not be configured in a loop.
- ThinWire cable segments must not have any branch segments.

Installing the Access Server 316 in a Rack

You can rack mount the Access Server 316 in any one of four ways (Table 3-4) depending on how you install the brackets.

Table 3-4. Installing the Access Server 316 Brackets

Access Server 316 Installation	Bracket Installation
1. Flush with rear facing outward	Flush with rear
2. Recessed 2.54 cm (1 in) with rear facing outward	Forward 2.54 cm (1 in) from rear
3. Flush with front facing outward	Flush with front
4. Recessed 2.54 cm (1 in) with front facing outward	Forward 2.54 cm (1 in) from rear

Figure 3-1 shows how to install the brackets in order to recess the Access Server 316.

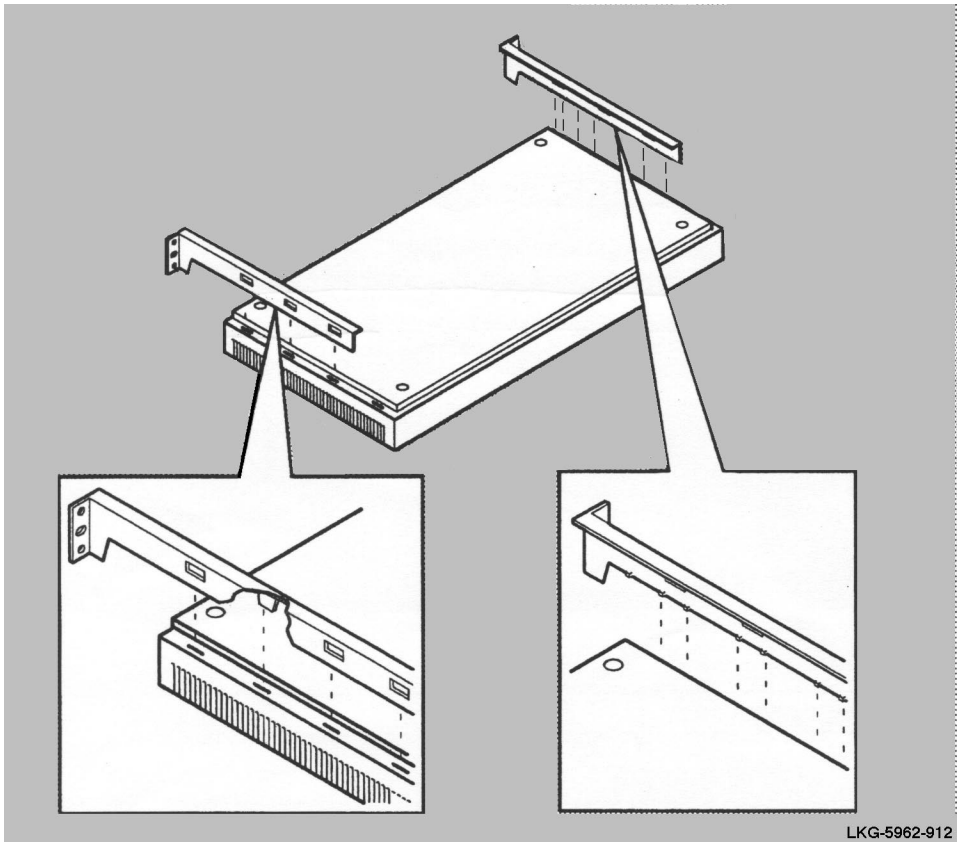


Figure 3-1. Access Server 316 Bracket Installation

Figure 3-2 shows how to remove the brackets from the Access Server 316.

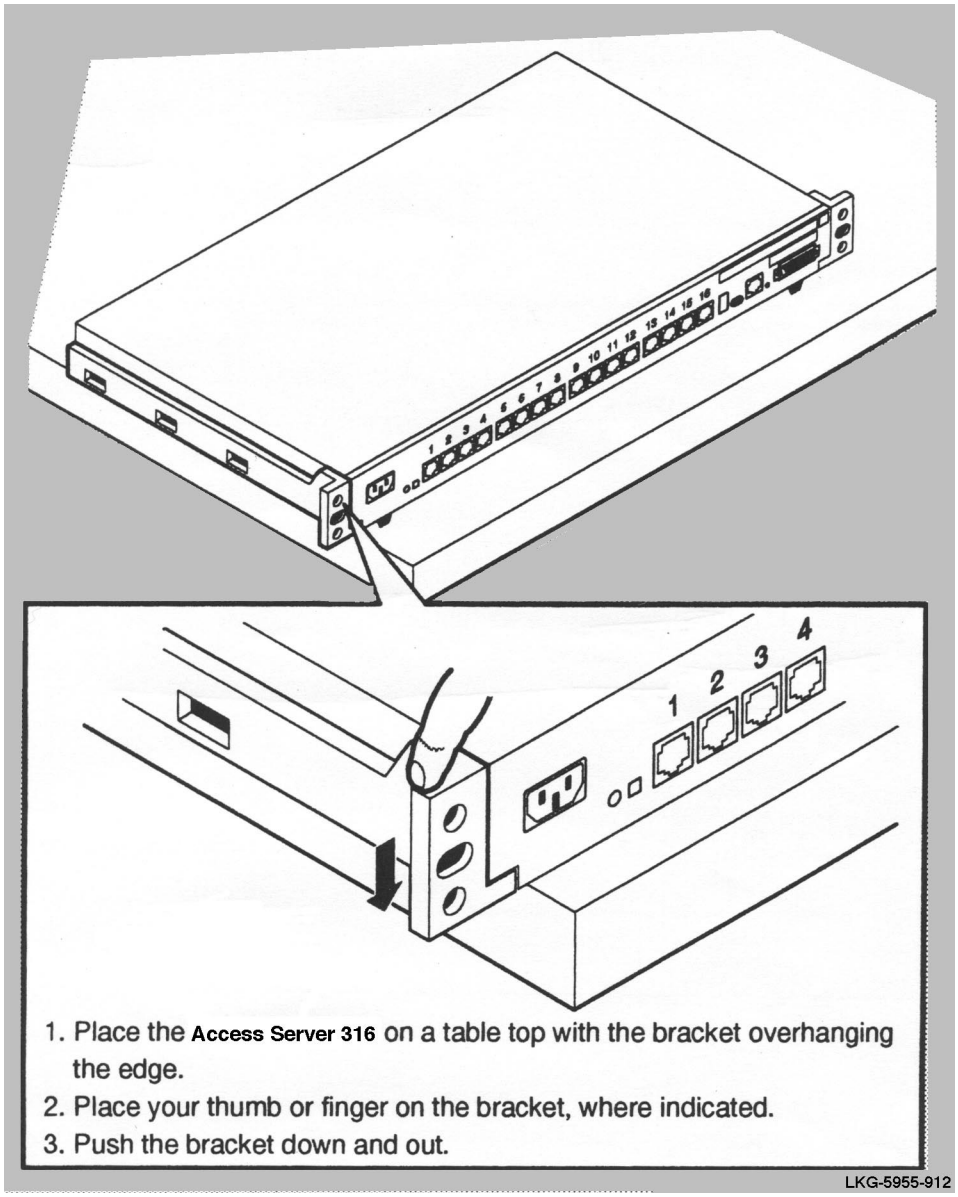

1 2 3 4
1. Place the Access Server 316 on a table top with the bracket overhanging the edge.
2. Place your thumb or finger on the bracket, where indicated.
3. Push the bracket down and out.
LKG-5955-912

Figure 3-2. Access Server 316 Bracket Removal

Installing the Access Server 316 on a Desktop

To install the Access Server 316 on a desktop:

Step	Action
1	Turn the Access Server 316 upside down.
2	Remove the backing from the feet.
3	Stick the feet to the Access Server 316.

Chapter 4

Connector and Cable Pin Descriptions

This chapter describes the pins of the Access Server 316 hardware connectors and the cables used to interface to the Access Server 316 hardware. Wiring diagrams of the individual cables are included to help you in troubleshooting and cable building.

This chapter includes the following sections:

- Connector Pin Descriptions
- Cable Connections
- Cabling and Adapters Used with Access Server 316

Connector Pin Descriptions

This section describes the pins for the following Access Server 316 connectors:

- Standard Ethernet / IEEE 802.3 transceiver interface
- 10BaseT Ethernet / IEEE 802.3 transceiver interface
- Access Server 316 serial port connectors

Standard Ethernet

Figure 4-1 shows how the pins are numbered on a standard Ethernet transceiver interface connector and Table 4-1 lists the signals for the standard Ethernet connector pins.

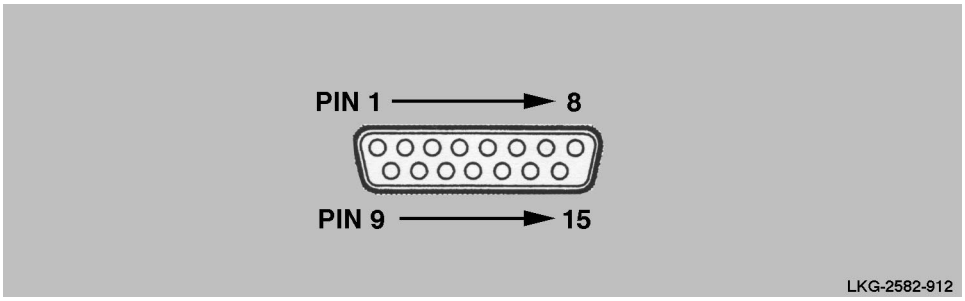


Figure 4-1. Pin Numbers and Signals for Standard Ethernet Connector

Table 4-1. Signal Names for Standard Ethernet Connector Pins

Pin No.	Signal Name
1	Shield
2	Collision Presence +
3	Transmit +
4	Reserved
5	Receive +
6	+ 12 Volt Power Return
7	Reserved
8	Reserved
9	Collision Presence -
10	Transmit -
11	Reserved
12	Receive -
13	+12 Volt Power
14	Reserved
15	Reserved

10BaseT Ethernet

The 10BaseT Ethernet connector is an 8-pin modular jack (MJ8). Figure 4-2 shows how the pins are numbered on a 10BaseT Ethernet connector and Table 4-2 lists the signals for the 10BaseT Ethernet connector.

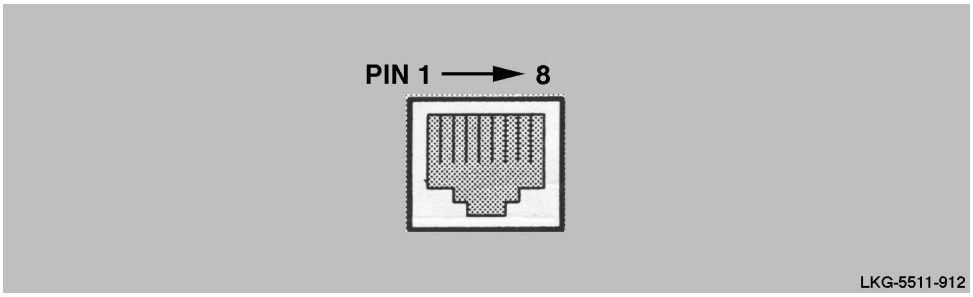


Figure 4-2. Pin Numbers and Signals for 10BaseT Ethernet Connector

Table 4-2. Signal Names for 10BaseT Ethernet Connector Pins

Pin No.	Signal Name
1	Transmit +
2	Transmit -
3	Receive +
4	Reserved
5	Reserved
6	Receive -
7	Reserved
8	Reserved

Access Server 316 Serial Line Ports

The Access Server 316 uses an MJ8 connector on the serial ports. Figure 4-3 shows how the pins are numbered on the MJ8 connector and Table 4-3 lists the signals on the pins. You can set pins 4, 5, and 8 to either CTS, RTS, DSR or RI, DSRS, DCD.

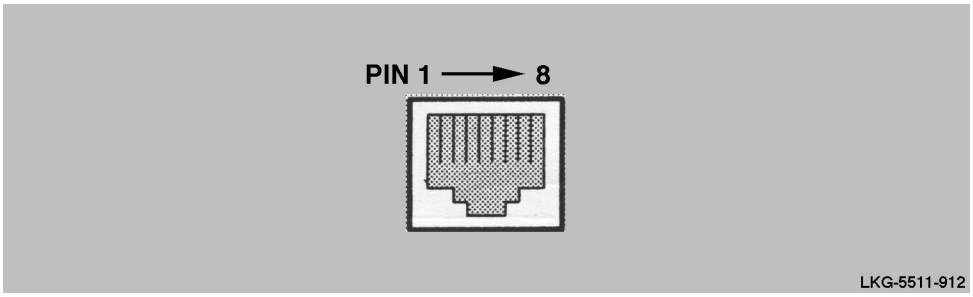


Figure 4-3. Pin Numbers and Signals for the MJ8 Connector

Table 4-3. Signal Names and Default Values for MJ8 Connector Pins

Pin No.	Signal Name	Software Default[1]	Software Alternative[1]
1	RXD GND		
2	RXD		
3	TXD GND		
4	CTS or RI (selected by software)	CTS	RI
5	RTS or DSRS (selected by software)	RTS	DSRS
6	TXD		
7	DTR		
8	DSR or DCD (selected by software)	DSR	DCD

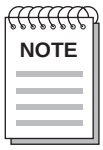
1. To change default values, refer to the Cabletron *Network Access Software Management Guide.*

Cable Connections

Table 4-4 describes the cable connections that are compatible with the Access Server 316 Ethernet and serial line connectors. Wiring diagrams of individual cables are provided for use in troubleshooting and cable building.

Table 4-4. Cable Connections

Cable Type	Description
10BaseT Ethernet Cable	The 10BaseT Ethernet cable uses an 8-pin modular plug on each end.
BN25G MP8 to MP8 Equipment Cable	The BN25G is a four twisted-pair cable with standard 8-pin modular plugs.
H8585-AA MJ8 to DB9 Null-Modem Adapter	The H8585-AA MJ8 to DB9 null-modem adapter is used to convert the serial port to a DB9 female connector for asynchronous connection to a PC port.
BN24H MP8 to MP6 Office Cable	The BN24H is a three twisted-pair cable with a standard 8-pin modular plug on one end and a 6-pin modular plug on the other.
H8585-AB MJ8 to DB25 Modem Adapter	The H8585-AB MJ8 to DB25 low speed modem adapter is used to convert a serial port to the DB25 configuration. Used for older styles of modems.
H8585-AC MJ8 to DB25 Modem Adapter	The H8585-AC MJ8 to DB25 high speed modem adapter is used to convert a serial port to the DB25 configuration.



Adapters H8585-AB and H8585-AC are not for connection to public networks in Sweden, Germany, or Japan.

Cabling and Adapters Used with Access Server 316

The following figures illustrate the cabling and adapters used that can be used with the Access Server 316.

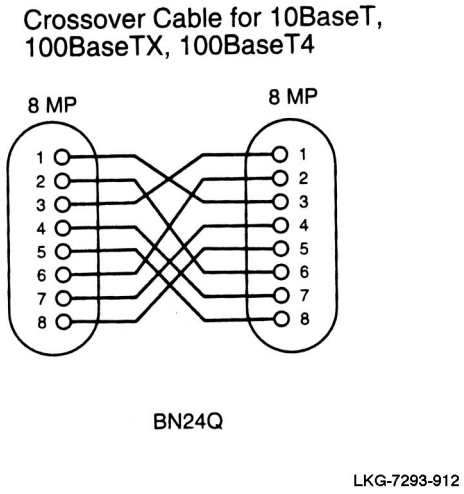


Figure 4-4. Crossover Cable Connection

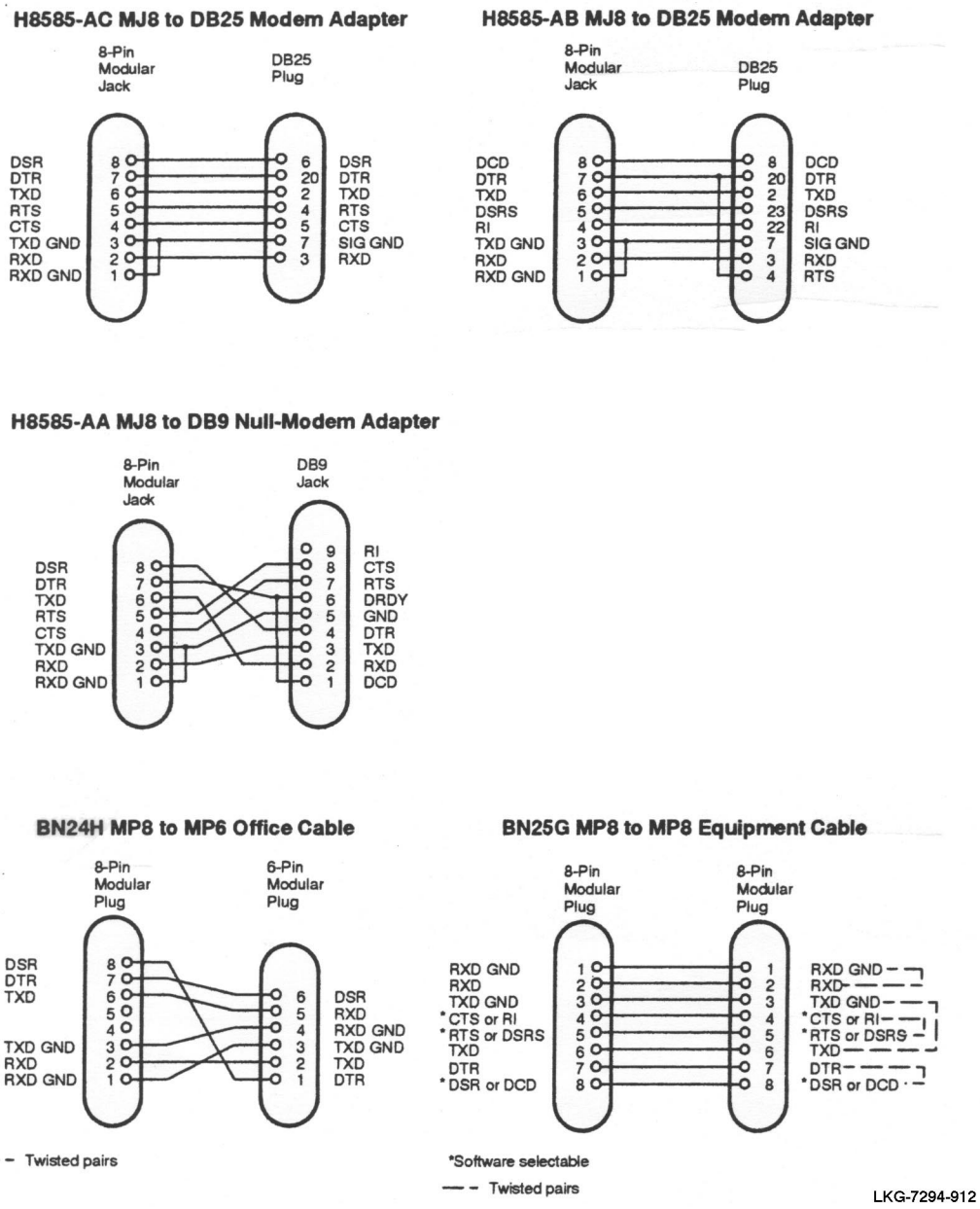

H8585-AC MJ8 to DB25 Modem Adapter
8-Pin Modular Jack
DB25 Plug
DSR 8 — 6 DSR
DTR 7 — 20 DTR
TXD 6 — 2 TXD
RTS 5 — 4 RTS
CTS 4 — 5 CTS
TXD GND 3 — 7 SIG GND
RXD 2 — 3 RXD
RXD GND 1
H8585-AB MJ8 to DB25 Modem Adapter
8-Pin Modular Jack
DB25 Plug
DCD 8 — 8 DCD
DTR 7 — 20 DTR
TXD 6 — 2 TXD
DSRS 5 — 23 DSRS
RI 4 — 22 RI
TXD GND 3 — 7 SIG GND
RXD 2 — 3 RXD
RXD GND 1 — 4 RTS
H8585-AA MJ8 to DB9 Null-Modem Adapter
8-Pin Modular Jack
DB9 Jack
DSR 8 — 9 RI
DTR 7 — 8 CTS
TXD 6 — 7 RTS
RTS 5 — 6 DRDY
CTS 4 — 5 GND
TXD GND 3 — 4 DTR
RXD 2 — 3 TXD
RXD GND 1 — 2 RXD
1 DCD
BN24H MP8 to MP6 Office Cable
8-Pin Modular Plug
6-Pin Modular Plug
DSR 8 — 6 DSR
DTR 7 — 5 RXD
TXD 6 — 4 RXD GND
5 — 3 TXD GND
4 — 2 TXD
TXD GND 3 — 1 DTR
RXD 2
RXD GND 1
Twisted pairs
BN25G MP8 to MP8 Equipment Cable
8-Pin Modular Plug
8-Pin Modular Plug
RXD GND 1 — 1 RXD GND
RXD 2 — 2 RXD
TXD GND 3 — 3 TXD GND
*CTS or RI 4 — 4 *CTS or RI
*RTS or DSRS 5 — 5 *RTS or DSRS
TXD 6 — 6 TXD
DTR 7 — 7 DTR
*DSR or DCD 8 — 8 *DSR or DCD
*Software selectable
Twisted pairs
LKG-7294-912

Figure 4-5. Crossover and Straight-Through Cable Connections

Chapter 5

Replacing and Adding Memory

This chapter describes and illustrates the procedures for handling single-in-line memory modules (SIMs) and Flash RAM when swapping out an Access Server 316 unit, and it shows how to replace a faulty SIM and add memory.

This chapter includes the following sections:

- Swapping or Replacing an Access Server 316 Unit
- Replacing a Faulty Single-In-Line Memory Module
- Additional Memory Supported
- Installing Extra Memory

Swapping or Replacing an Access Server 316 Unit

Whenever an Access Server 316 unit is replaced, the Single In-Line Memory Modules (SIMs) and FLASH CARD must be REMOVED from the old unit and re-installed in the replacement. The removable Flash Card is used for installation of the Network Access Software and is not required for the operation of the unit.

Before an Access Server 316 is swapped, assure that at least one memory SIM is installed. Please refer to the following chapters for the correct procedure for removing and installing SIMs and Flash Cards.

SIMs are sensitive to static and are packed in anti-static packaging. Electrostatic Discharge (ESD) can cause failure of electronic components and can reduce the long term reliability of the Access Server 316. Cabletron recommends that you use an anti-static kit or ESD wrist strap when handling SIMs.

Replacing a Faulty Single-In-Line Memory Module

To replace a SIM:

1. Disconnect all cables from the Access Server 316.
2. Remove the Access Server 316 brackets (if fitted) (Figure 5-1).

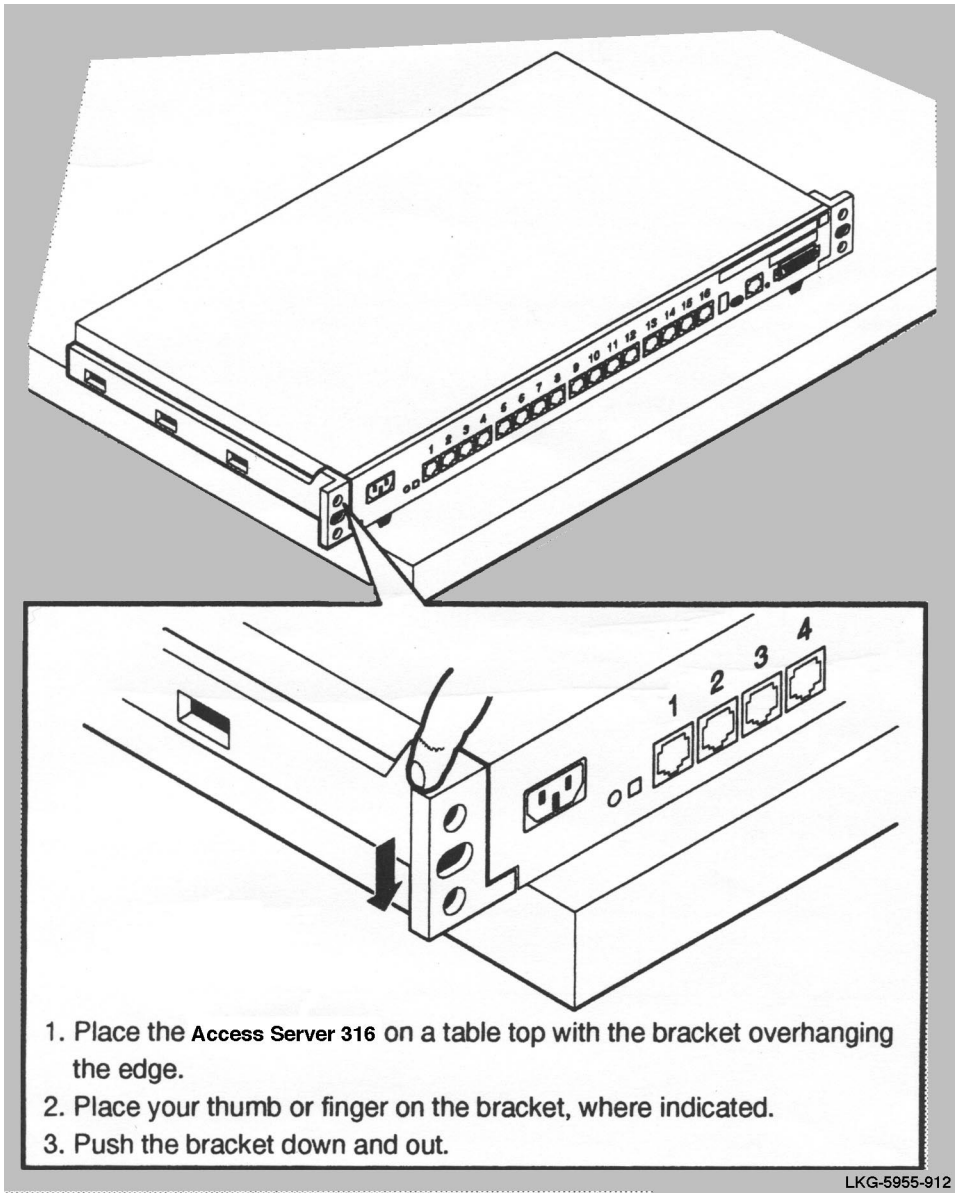

1
2
3
4
1. Place the Access Server 316 on a table top with the bracket overhanging the edge.
2. Place your thumb or finger on the bracket, where indicated.
3. Push the bracket down and out.
LKG-5955-912

Figure 5-1. Replace Unit

3. Remove the Access Server 316 cover (Figure 5-2).

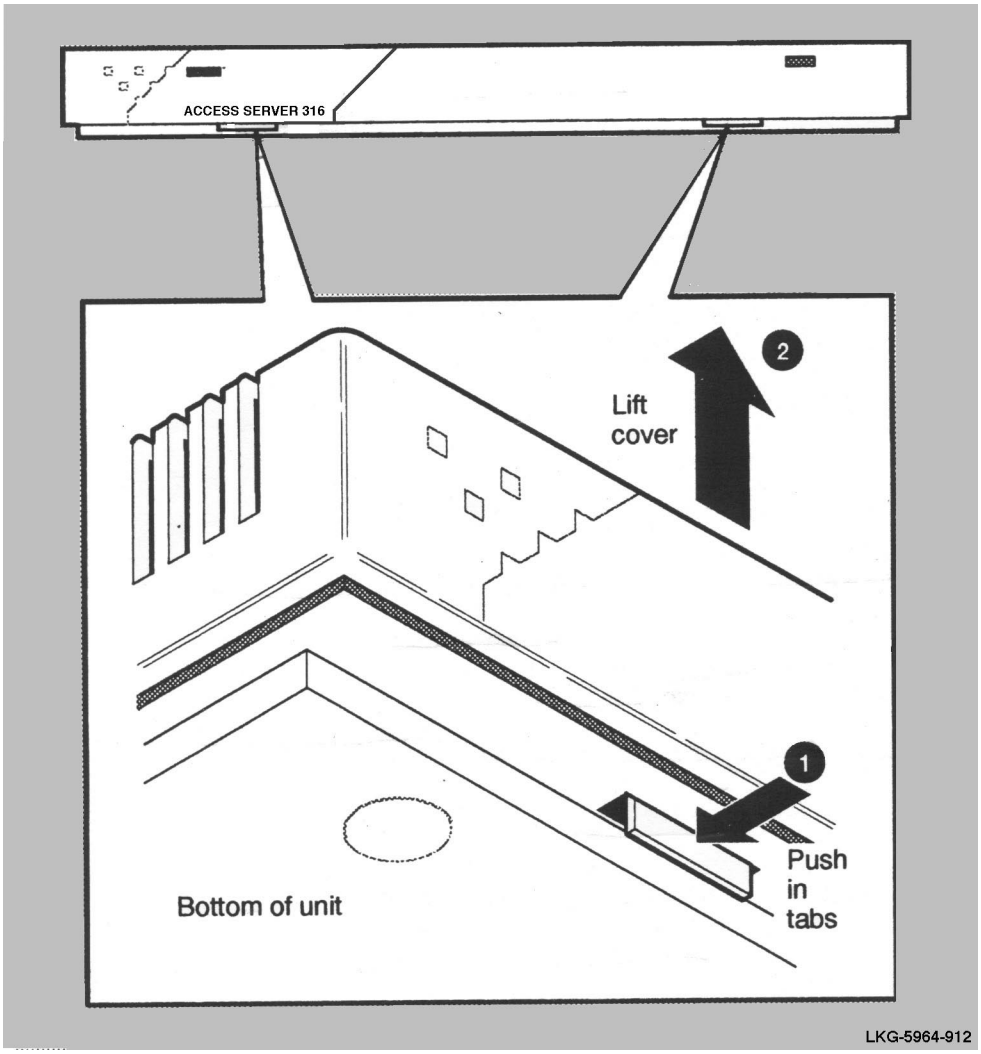


Figure 5-2. Cover Removal

4. Fit the anti-static kit (Figure 5-3).

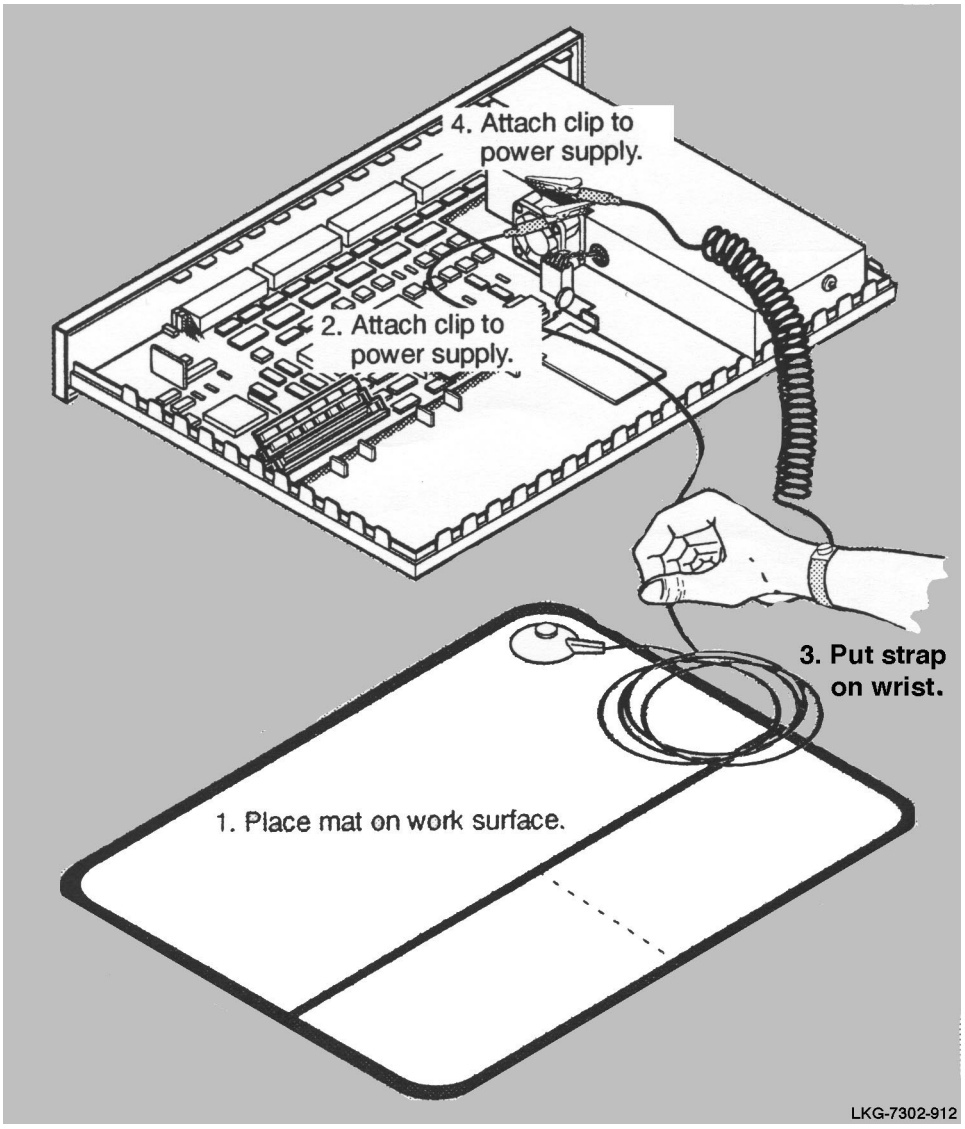


Figure 5-3. Anti-Static Wrist Guard

5. Locate the SIM connectors (Figure 5-4).

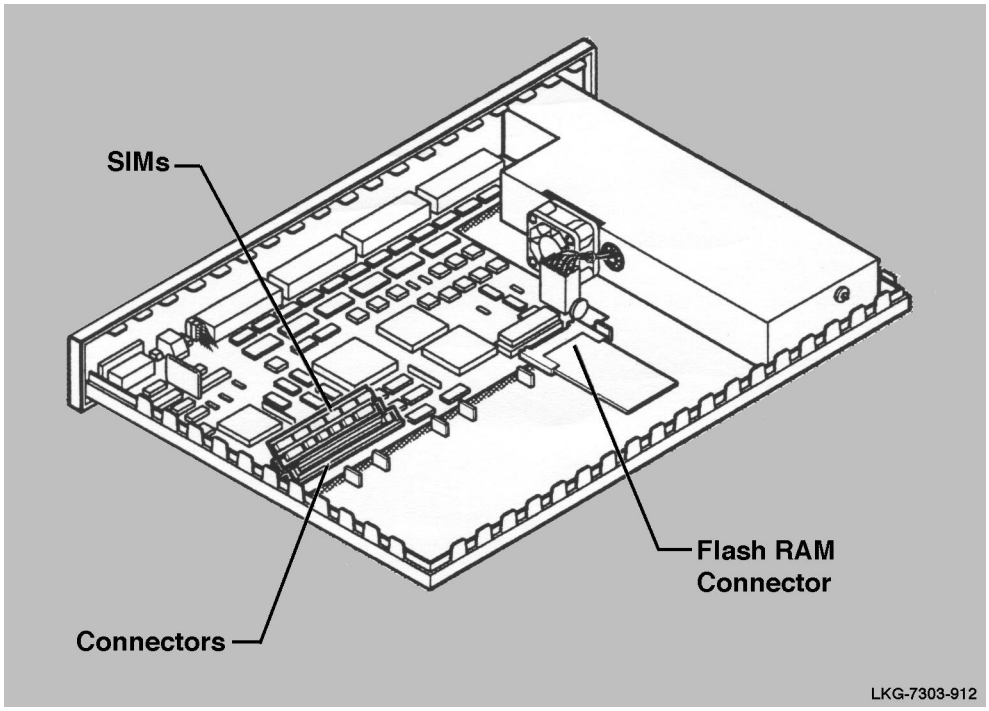


Figure 5-4. SIM Location

6. Remove the faulty SIM (Figure 5-5).

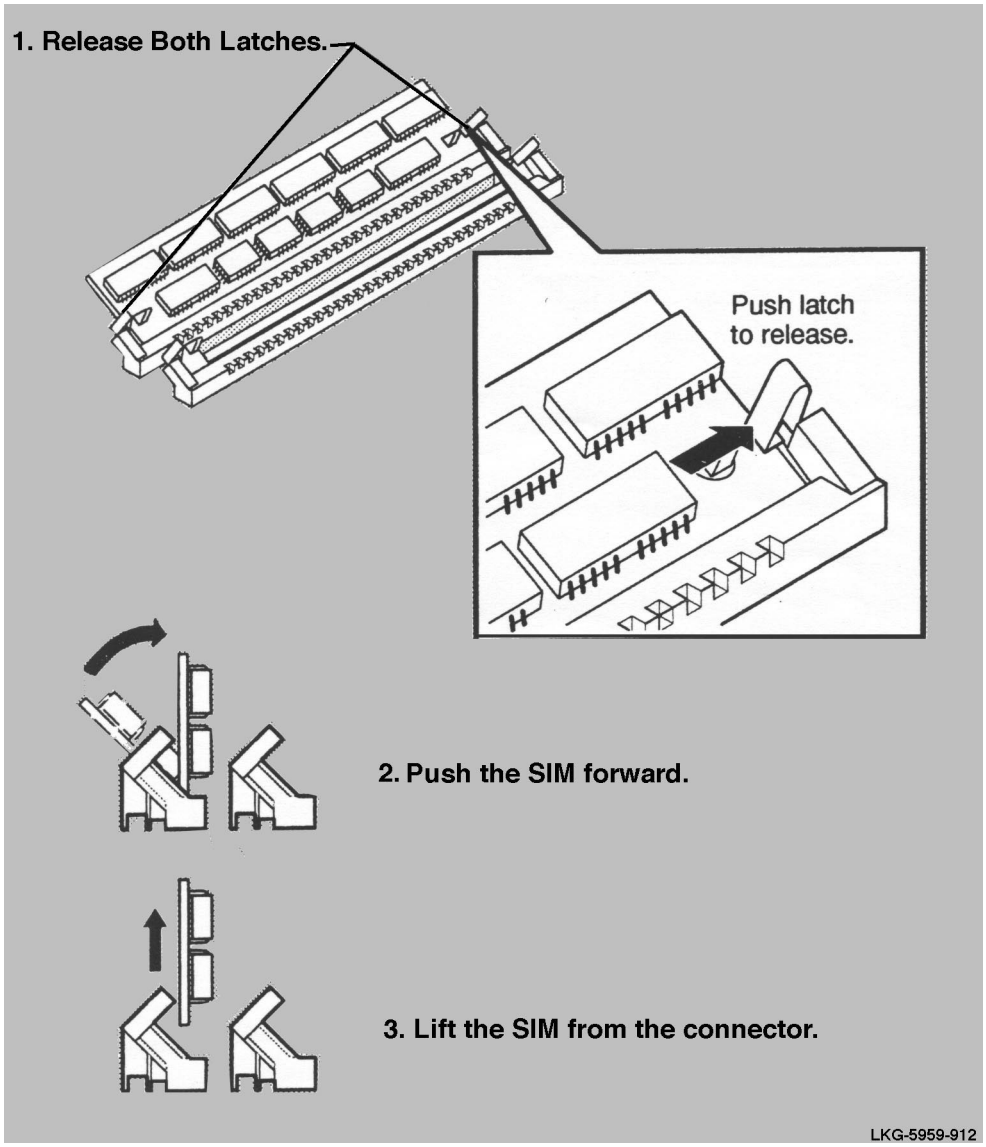


Figure 5-5. SIM Removal

7. Insert the replacement SIM into the connector (Figures 5-6 & 5-7).

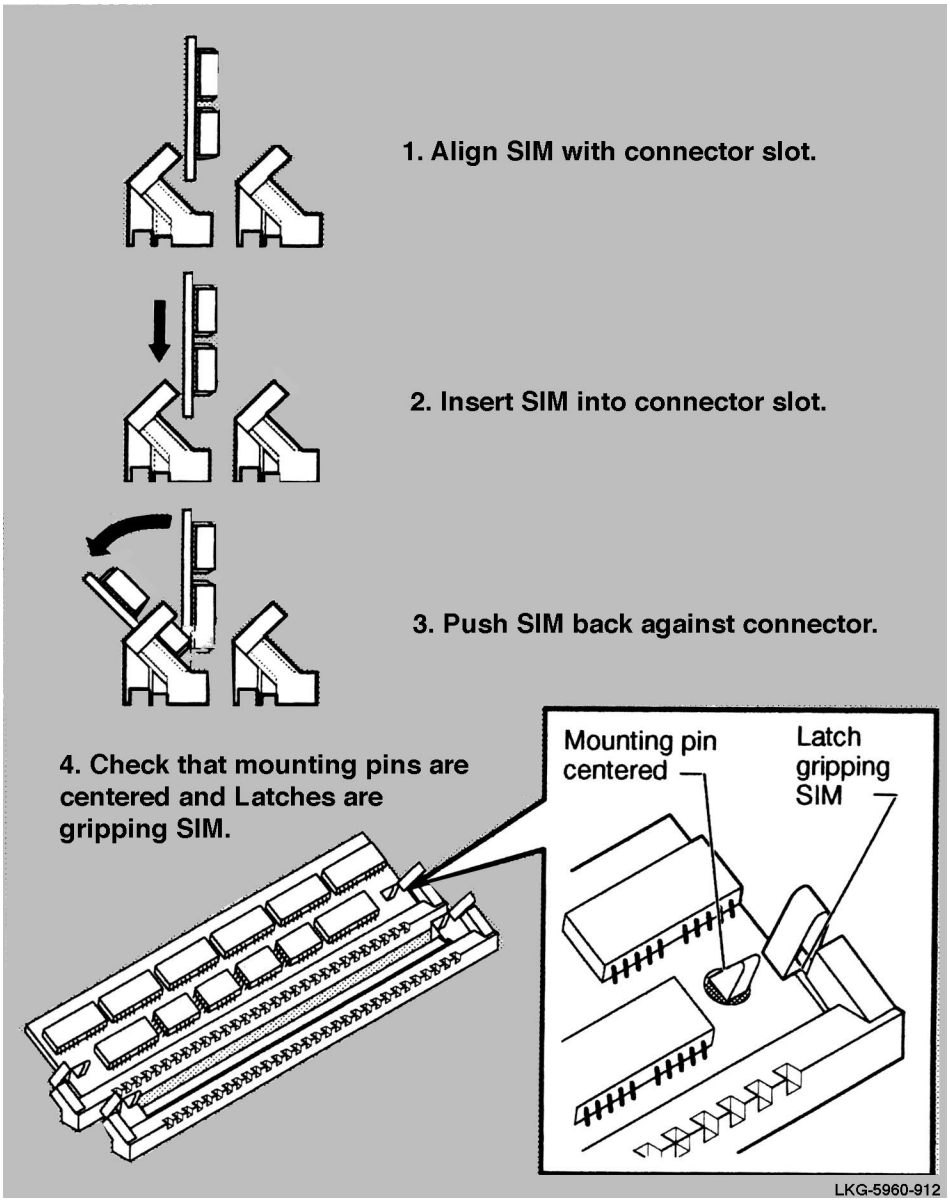

1. Align SIM with connector slot.
2. Insert SIM into connector slot.
3. Push SIM back against connector.
4. Check that mounting pins are centered and Latches are gripping SIM.
Mounting pin centered
Latch gripping SIM
LKG-5960-912

Figure 5-6. SIM Replacement

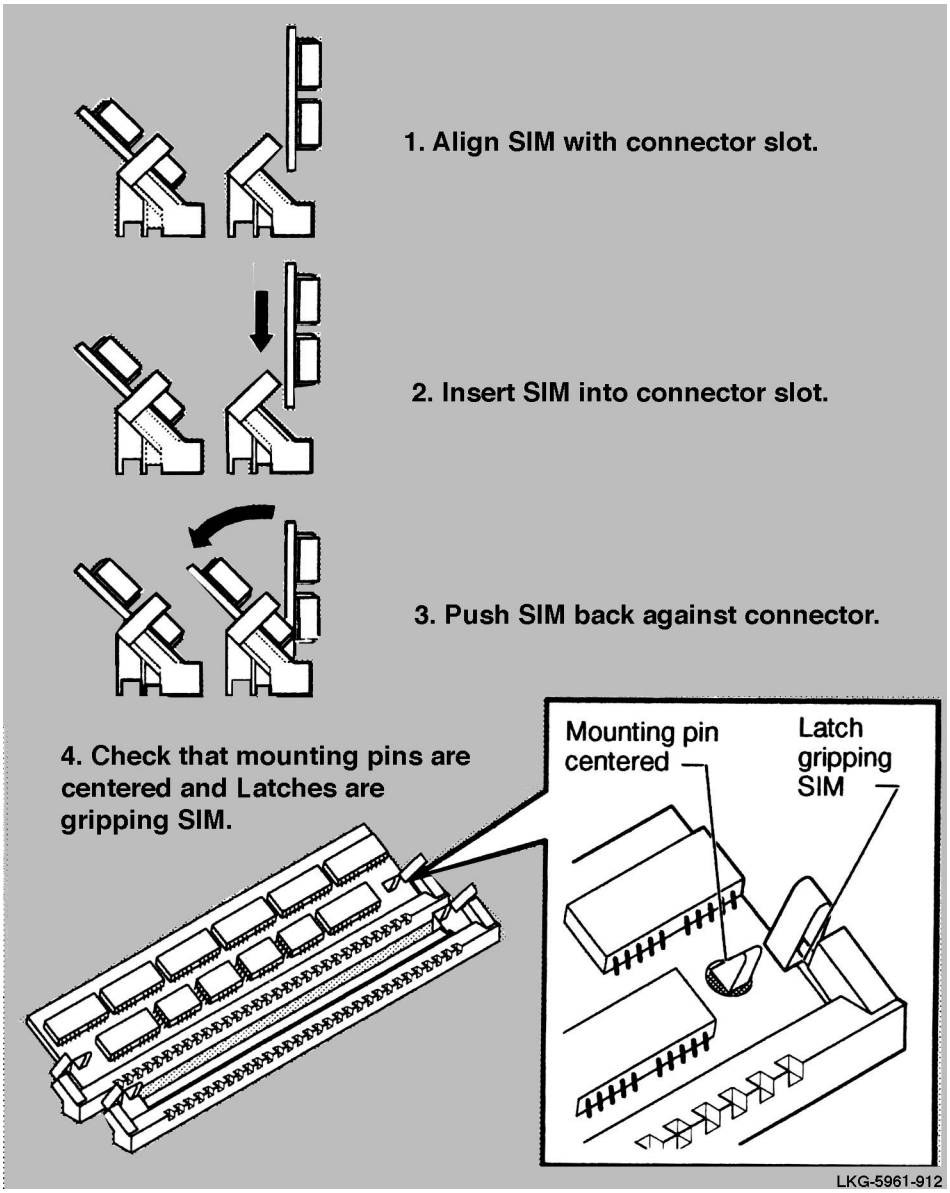

1. Align SIM with connector slot.
2. Insert SIM into connector slot.
3. Push SIM back against connector.
4. Check that mounting pins are centered and Latches are gripping SIM.
Mounting pin centered
Latch gripping SIM
LKG-5961-912

Figure 5-7. Adding an Additional SIM

8. Remove the anti-static kit.
9. Replace the cover (Figure 5-8).

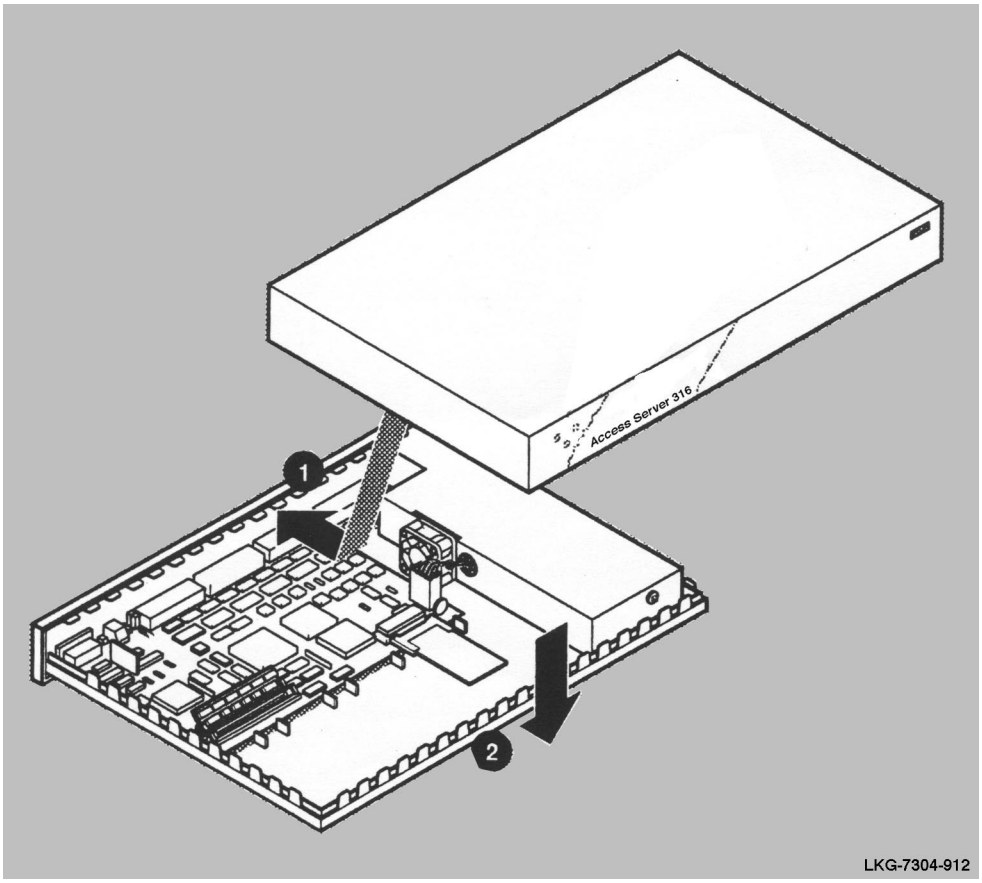


Figure 5-8. Cover Replacement

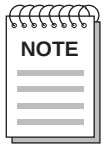
10. Connect a terminal to the Access Server 316 (See section titled **System OK LED Flashing** on page 7-4.).
11. Reconnect the cables and test the Access Server 316.

    When you plug in the power cable, the Access Server 316 runs self-tests. After the tests are completed, the Access Server 316 requests a load from Flash RAM. If Flash RAM is installed, three horizontal segments will be displayed. To abort Flash RAM load and to load from the network, press and hold the system reset switch until the display flashes. The Seven-segment display will alternate between 3 and 4 until the software is loaded from the network. Allow 3 minutes for the Access Server 316 to complete the procedure.

Alternatively, connect a terminal to the console port of the Access Server 316, using 9600 baud, 8 bits, and no parity. Wait for the status messages to appear on the terminal indicating a Flash RAM load is in progress. Enter Ctrl-B twice on the keyboard. In response to the ">>>" prompt, enter the following command:

>>>b eth:wweng2

If you are using a special load image file, use that file name in place of wweng2.



If the SIM memory is faulty, the Access Server 316 flashed "C" if the faulty SIM is in connector 1 and "d" if the faulty SIM is in connector 2. If you install the wrong type SIM, the Access Server 316 flashes "n". Remove or replace the SIM to repair the Access Server 316.

12. Check status message 960 to verify memory size:

    Local -960- Available memory 4 Mbytes

Additional Memory Supported

You can increase the memory of your Access Server 316 by adding extra single-in-line memory modules (SIMs). The Access Server 316 contains 4 Mbytes of SIM memory. However, future releases of Access Server 316 software may contain additional functions that require more SIM memory. You can install the additional SIM memory on site. Adding an additional 4-Mbyte SIM will increase the memory to the maximum of 8 Mbytes.

The Access Server 316 supports 4-Mbyte SIMs (1M x 36).

There are two SIM connectors on the Access Server 316 printed circuit board. One of the connectors contains the factory installed 4-Mbyte SIM (Figure 5-4).

The Access Server 316 supports only SIMs with the following access times:

- 80 nano seconds
- 70 nano seconds

The Access Server 316 supports only SIMs in the following configurations:

- 4 Mbytes (one 4-Mbyte SIM in any connector)
- 8 Mbytes (one 4-Mbyte SIM per connector)

NOTE

The Access Server 316 supports only 36-bit-wide SIMs. If you are not using Cabletron Systems SIMs, check the specification of your SIM to verify that it is 36-bit-wide. SIMs that are not 36-bit-wide will not work but may not be detected by the Access Server 316 diagnostics.

Installing Extra Memory

To install a SIM:

Step	Action
1	Disconnect all cables from the Access Server 316.
2	Remove the Access Server 316 brackets, if fitted (Figure 5-1).
3	Remove the Access Server 316 cover (Figure 5-2).
4	Fit the anti-static kit (Figure 5-3).
5	Locate the SIM connectors (Figure 5-4).
6	Remove the SIM from its wrappings and keep the memory label.
7	Insert the extra SIM in the connector (Figure 5-7).
8	Remove the anti-static kit.
9	Replace the cover (Figure 5-8).
10	Connect a terminal to the Access Server 316 (see the section titled System OK LED Flashing, in Chapter 7).
11	Reconnect the cables and test the Access Server 316.
12	When you plug in the power cable, the Access Server 316 runs a self-test. After the tests are completed, the Access Server 316 requests a load from Flash RAM. If Flash RAM is installed, three horizontal segments will be displayed. To abort Flash RAM load and to load from the network, press and hold the system reset switch until the display flashes. The Seven-segment display will alternate between 3 and 4 until the software is loaded from the network. Allow 3 minutes for the Access Server 316 to complete the procedure.
13	Compare the Seven-segment display and the System OK LED status with the information in Table 7-1.
14	Check status message 960 to verify memory size: Local -960- Available memory 4 Mbytes

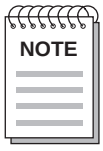
NOTE

If the SIM memory is faulty, the Access Server 316 flashes "C" if the faulty SIM is in connector 1 and "d" if the faulty SIM is in connector 2. If you install the wrong type SIM, the Access Server 316 flashes "n". Remove or replace the SIM to repair the Access Server 316.

Chapter 6

Replacing and Adding Flash RAM

This chapter shows how to replace or update an Access Server 316 Flash RAM Card.



Electrostatic Discharge (ESD) can cause failure of electronic components and can reduce the long term reliability of the Access Server 316. Cabletron Systems recommends you use an anti-static kit or ESD wrist strap when installing a Flash RAM Card.

This chapter includes the following section:

- Replacing or Adding Flash RAM

Replacing or Adding Flash RAM

To replace or install the Flash RAM Card:

1. Disconnect all cables from the Access Server 316.
2. Remove the Access Server 316 brackets, if fitted (Figure 6-1).

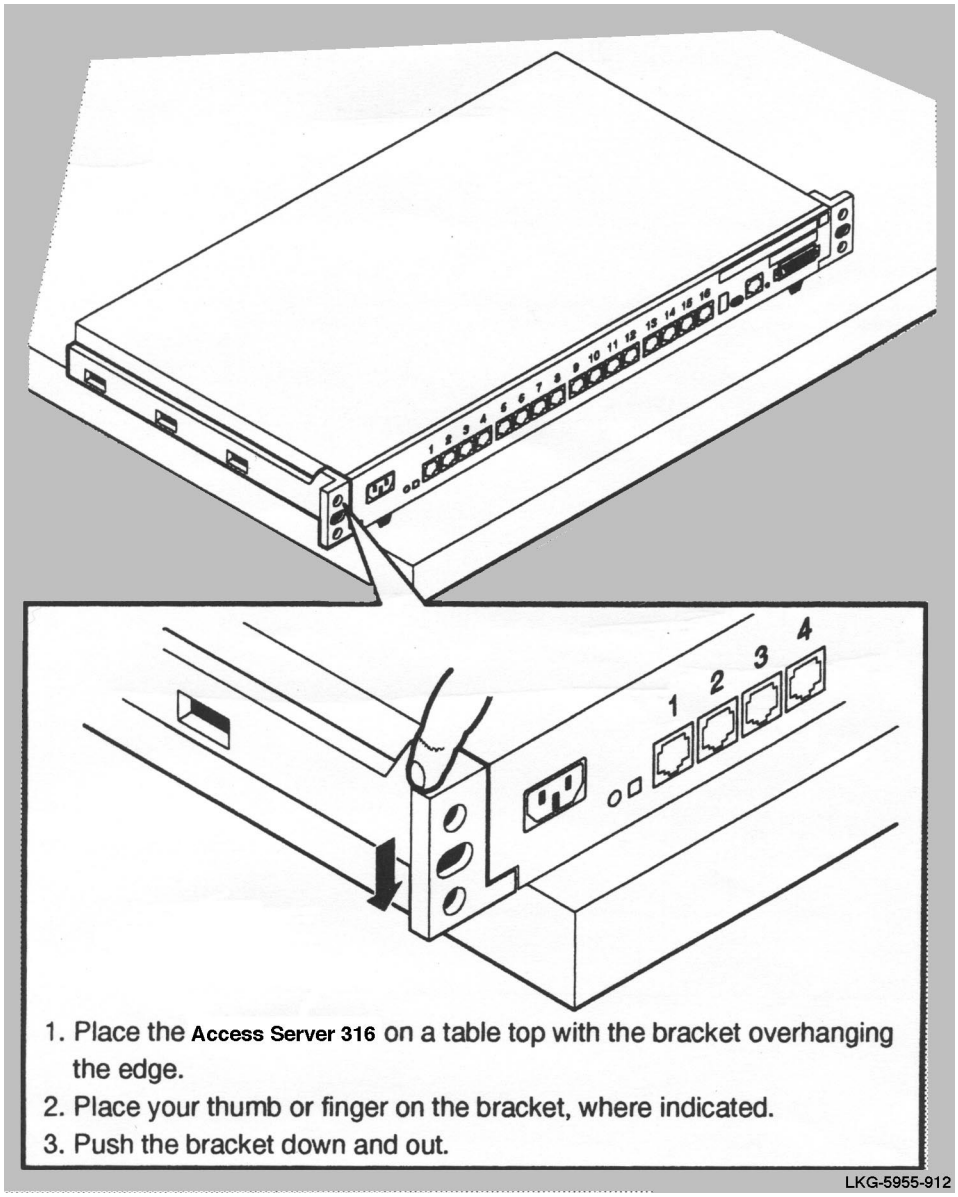

1 2 3 4
1. Place the Access Server 316 on a table top with the bracket overhanging the edge.
2. Place your thumb or finger on the bracket, where indicated.
3. Push the bracket down and out.
LKG-5955-912

Figure 6-1. Removing the Brackets

3. Remove the Access Server 316 cover (Figure 6-2).

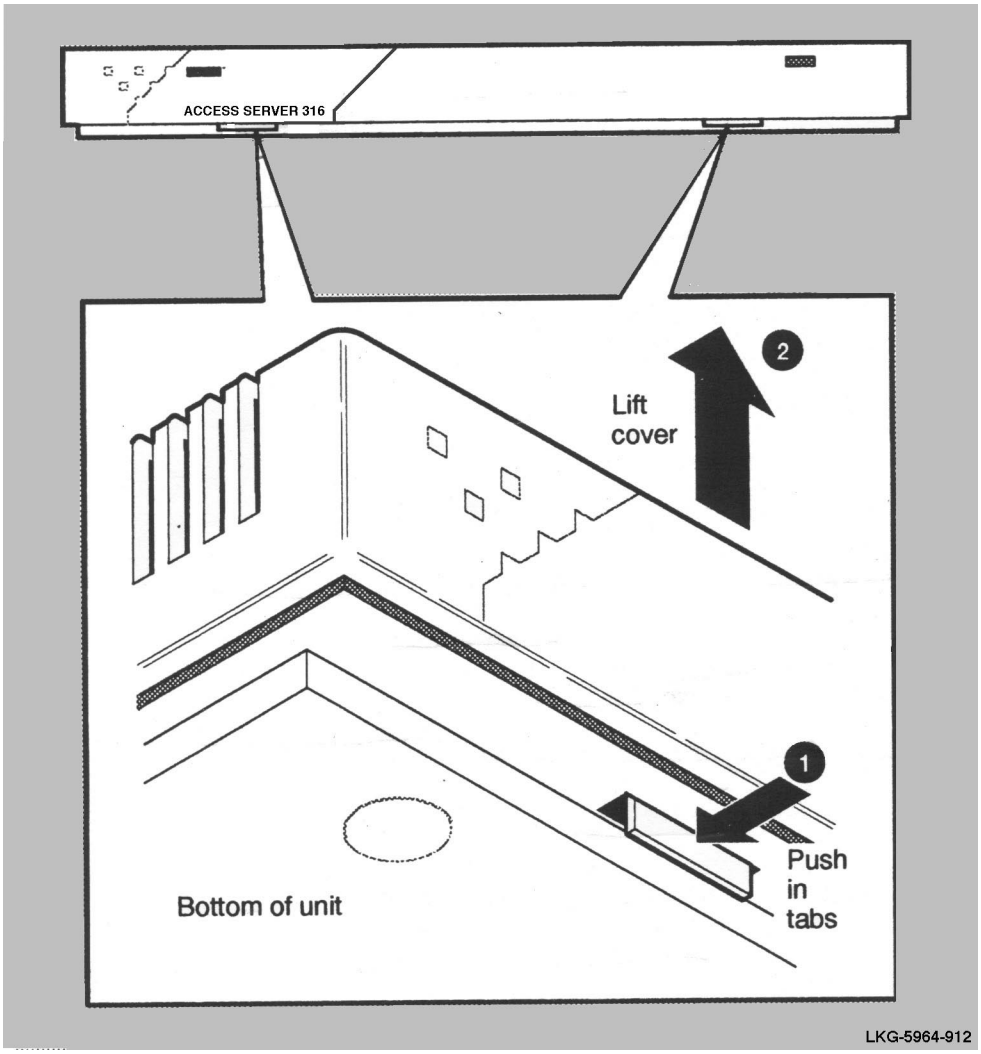


Figure 6-2. Removing the Cover

4. Fit the anti-static kit (Figure 6-3).

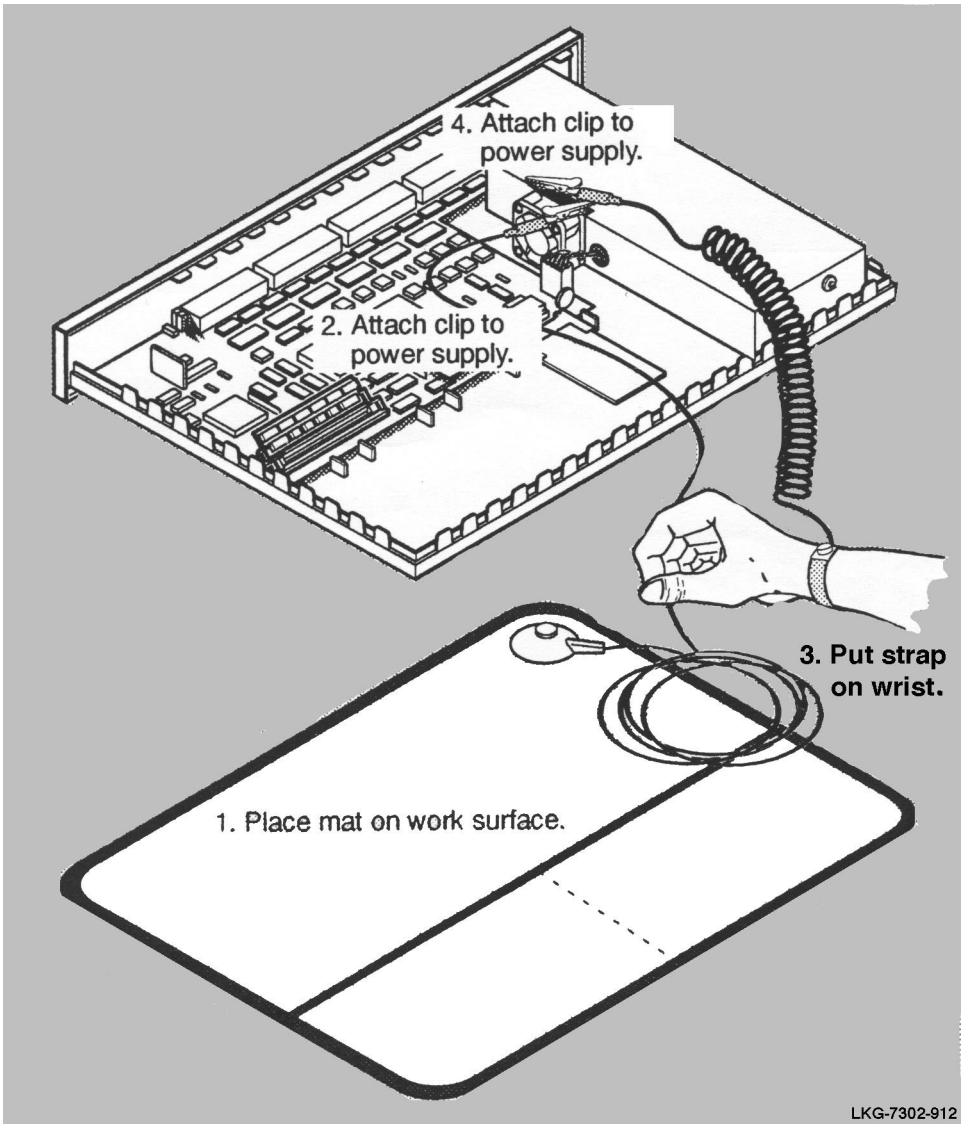


Figure 6-3. Fitting the Anti-Static Kit

5. Locate the Flash RAM connector or remove the faulty Flash RAM Card (Figure 6-4).

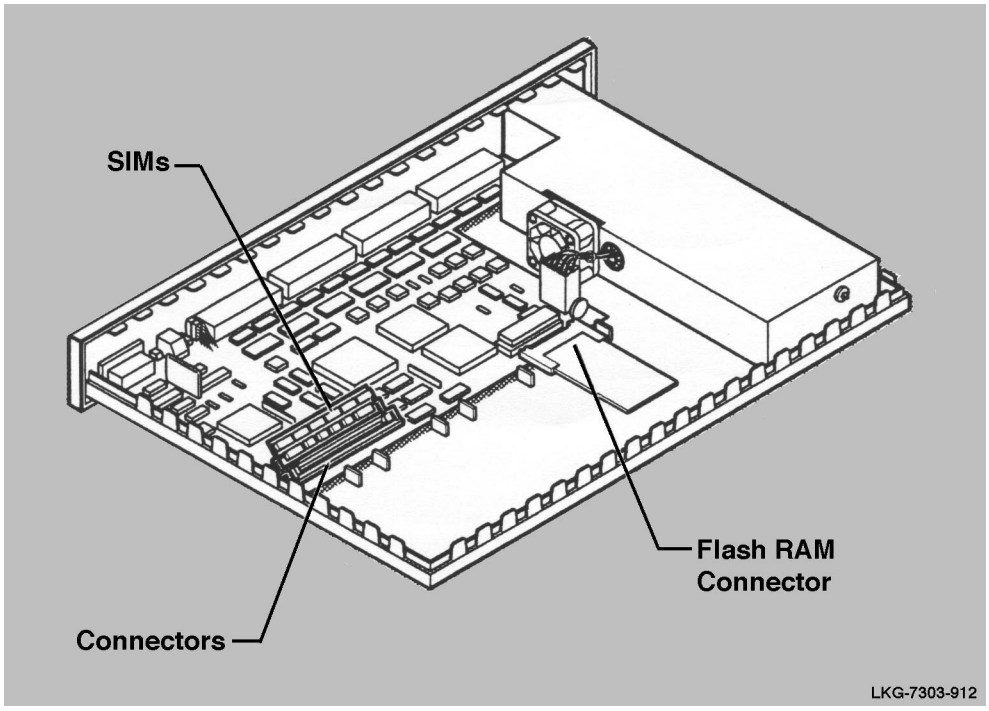


Figure 6-4. Locating the Flash RAM Connector/Removing Faulty Flash RAM Card

6. Insert the replacement or Flash RAM Card update in the connector (Figure 6-5).

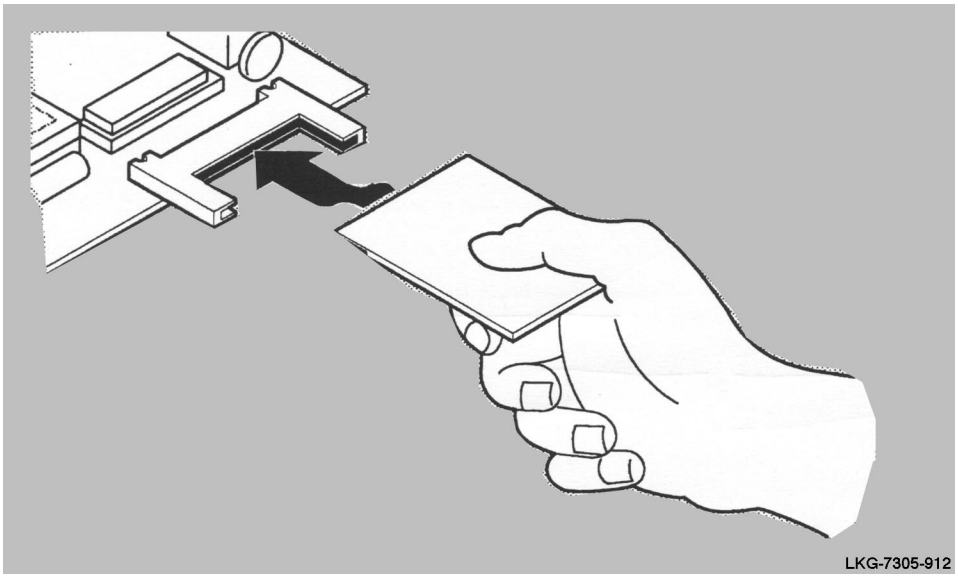


Figure 6-5. Inserting the Replacement or Flash RAM Card Update

NOTE

The Flash RAM socket is keyed. Ensure that you follow the instructions located on the Flash RAM card when installing.

7. Remove the anti-static kit.
8. Replace the cover (Figure 6-6).

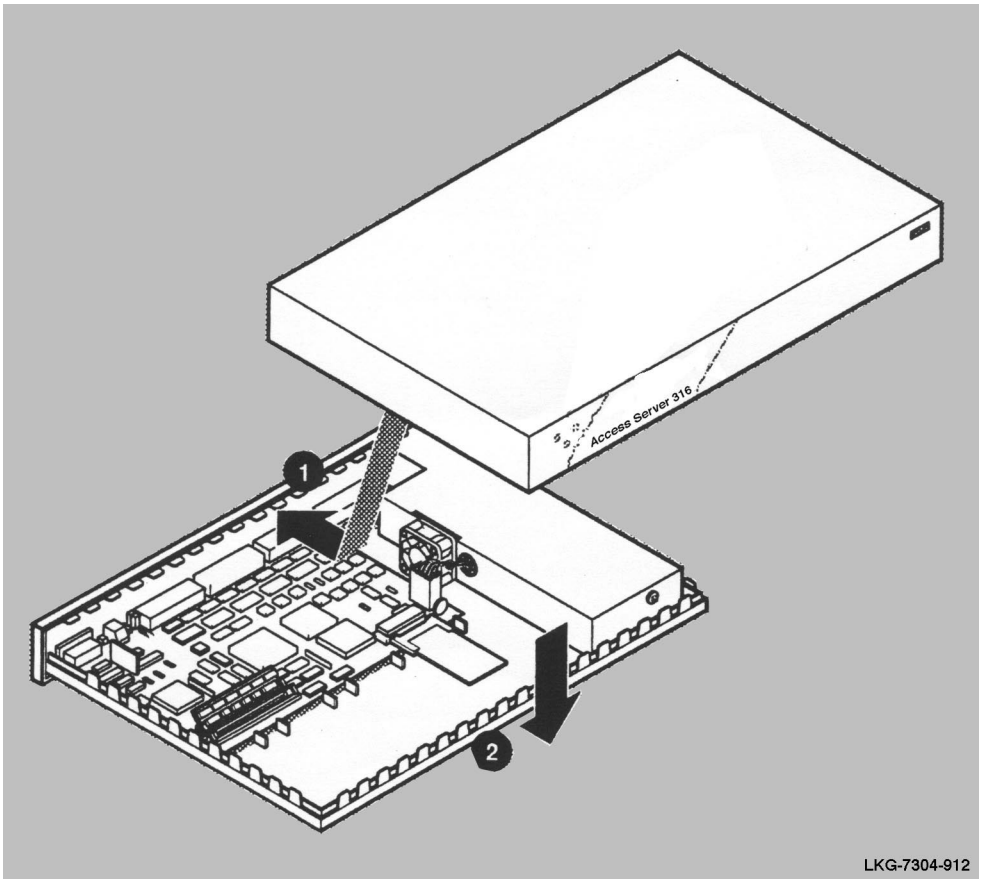


Figure 6-6. Replacing the Cover

9. Connect a terminal to the Access Server 316 (See section titled **System OK LED Flashing** on page 7-4).

10. Reconnect the cables and test the Access Server 316.

    When you plug in the power cable, the Access Server 316 runs a self-test. After the tests are completed, the Access Server 316 requests a load from Flash RAM. If Flash RAM is installed, three horizontal segments will be displayed.

    To abort Flash RAM load and to load from the network, press and hold the system reset switch until the display flashes. The Seven-segment display will alternate between 3 and 4 until the software is loaded from the network. Allow 3 minutes for the Access Server 316 to complete the procedure.

11. Compare the Seven-segment display and the System OK LED status with Table 6-1.

Table 6-1. LED Status

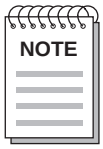
Device	Definition	State	Indication	Corrective Action
System OK LED	Diagnostic	On	Self-test passed	-
		Off	Fatal error[1]	Page 7-3 Page 7-4
		Flashing	Nonfatal error[1]	Page 7-4
Seven-segment display	Status/ Diagnostic	Off	No power or display broken	Page 7-3
		"C", "d", "n"	SIM failure	Page 7-3
		Flashing	Fatal error	Page 7-4
		"3"	Load request backoff	Page 7-6
		Rotating segment pattern	Access Server 316 software executing	-

1. A fatal error means that the network access server cannot function. A nonfatal error means that the network access server can function with reduced capability (for example, one serial port not working).

12. Check the status of the Flash RAM card using the SHOW CONFIGURATION command.

Example

```
Local> SHOW MEMORY CONFIGURATION
Dynamic RAM:              4M bytes
Non-Volatile RAM:         32K bytes
Flash RAM:
  Installed:              Yes
  Total size:             4M bytes
  Boot block:             Valid
  Load image:
    Name:                 WWENG2
    Size:                 967756 bytes
    Version:              V2.3
```



If Flash RAM is installed, but its boot block is invalid, then the total memory size will be displayed as zero.

Your Flash RAM can also be updated with the INITIALIZE command. This command copies the load image to Flash RAM. For more information about the SHOW MEMORY CONFIGURATION or the INITIALIZE command, refer to the *Network Access Software Management* guide or *Network Access Software Commands* guide.

Chapter 7

What to Do If You Have Problems

This chapter helps you identify and correct problems you may encounter during and after the installation of the Access Server 316 hardware. The troubleshooting procedures are for diagnosing and correcting hardware-related problems only.

Notify the network manager if the troubleshooting procedures indicate the problem is software related or if the procedures do not correct the problem. Additional software troubleshooting information is provided in the *Network Access Software Problem Solving* guide.

Use the following to diagnose and troubleshoot the Access Server 316 problems:

- Seven-segment display
- System OK LED
- Console port messages

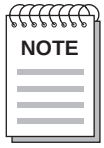
A full list of seven-segment display codes are shown at the end of this chapter. Refer to the *Network Access Software Management* guide for the procedure to configure a terminal to receive console port messages.

This chapter includes the following sections:

- Diagnosing Problems
- Seven-Segment Display Off and OK LED Off
- System OK LED Off / Seven-Segment Display Flashing “C”, “d”, or “n”
- System OK LED Off / Seven-Segment Display Flashing
- System OK LED Flashing
- Seven-Segment Display Shows a “3”
- Seven-Segment Display Codes
- Network Activity LED

Diagnosing Problems

Compare the state of the Seven-Segment Display and the System OK LED with those shown in Table 7-1 and go to the section indicated for information on corrective action.



On power up, the seven-segment display will show an "8". Allow about 3 minutes to elapse before determining the state of the display.

Table 7-1. Display/Indications

Device	Definition	State	Indication	Corrective Action
System OK LED	Diagnostic	On	Self-test passed	-
		Off	Fatal error[1]	Page 7-3 Page 7-4
		Flashing	Nonfatal error[1]	Page 7-4
Seven-Segment Display	Status / Diagnostic	Off	No power or display broken	Page 7-3
		"C", "d", "n"	SIM failure	Page 7-3
		Flashing	Fatal error	Page 7-3 Page 7-4
		"3"	Load request backoff	Page 7-6
		Rotating segment pattern	Access Server 316 software executing	-

1. A fatal error means that the network access server cannot function. A nonfatal error means that the network access server can function with reduced capability (for example, one serial port not working).

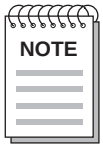
Seven-Segment Display Off and System OK LED Off

Problem(s)	Correction(s)
Power is not reaching the Access Server 316 hardware.	1. Secure the power cable at the Access Server 316 and at the wall outlet and check the fuse in the power cable plug (if applicable). 2. Check the wall outlet using another appliance or light, or plug the Access Server 316 power cord into another outlet. If power is not available at the wall outlet, check the wall outlet's circuit breaker. 3. Check the power cord by substituting another one. If the first power cord is defective, replace it.
The Access Server 316 hardware is defective.	Notify the network manager that the Access Server 316 must be returned to Cabletron Systems for repair or replacement. Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron Systems.

System OK LED Off / Seven-Segment Display Flashing "C", "d", or "n"

Problem: The Access Server 316 single-in-line memory (SIM) is faulty.

Correction: If the seven-segment display is flashing "C", replace the SIM in connector 1. If the seven-segment display is flashing "d", replace the SIM in connector 2. If no SIM or the wrong type of SIM is installed, the seven-segment display flashes "n". Refer to Chapter 5 for the procedure to replace a faulty SIM.



If the SIM is found to be faulty, return it to Cabletron Systems.

System OK LED Off / Seven-Segment Display Flashing

Problem: A hardware error occurred that makes the Access Server 316 nonoperational.

Correction: There is no corrective procedure for this problem except for SIM failure (refer to note). Notify the network manager that the Access Server 316 must be returned to Cabletron Systems for repair or replacement Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron Systems.

System OK LED Flashing

If the System OK LED is flashing after power up, it indicates that the Access Server 316 has a nonfatal problem detected during self-test. The error message on the console terminal shows the primary problem.

To isolate and diagnose the problem, do the following:

1. Connect a console terminal to the console port (default port is port 1) of the Access Server 316, then power up the terminal. Refer to the *Network Access Software Management* guide for procedure to set up the console port.
2. Configure the terminal to operate with a speed of 9600 bits per second and a character size of 8 bits (no parity). (Refer to the specific terminal user's guide if you need help setting up the terminal parameters.)
3. Unplug the Access Server 316 power cord at the wall outlet, then reinsert it.
4. Read the error message that appears on the terminal display.

Error Messages

This section lists and describes the error messages that occur in conjunction with System OK LED flashing. The section also describes the recommended corrective action.

Message: Local—922—Port hardware error on port *n*

Problem: The specified port has failed self-test.

Correction: There is no corrective procedure for this condition. Notify the network manager that the Access Server 316 must be returned to Cabletron Systems for repair or replacement. Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron.

Message: Local—941—Transceiver loopback error

Problem: The Ethernet port has failed self-test.

Correction: Determine which of the following corrections applies to your situation.

- Standard Ethernet / ThinWire — Replace the cables or MAU. Test again by pulling out the power cord and re-inserting. If this corrects the problem, the fault is external to the Access Server 316. If this fails to correct the problem, notify the network manager to return the Access Server 316 to Cabletron Systems for repair or replacement. Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron Systems.

  If the Access Server 316 passes self-test, the problem is in the cables or equipment connected to the Access Server 316.

- 10BaseT Ethernet — Replace the cables and device that is connected to the Access Server 316. If this corrects the problem, the fault is external to the Access Server 316. If this fails to correct the problem, notify the network manager to return the Access Server 316 to Cabletron Systems for repair or replacement. Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron Systems.

  If the Access Server 316 passes self-test, the problem is in the cables or equipment connected to the Access Server 316.

Message: Local—952—Enter ^P to repeat self-test

Problem: An error was detected on the Ethernet port.

Correction: The Access Server 316 displays this message with message 941. Refer to message 941 for the correction.

Message: Local—967—Parameter checksum error detected in NVRAM

Problem: Self-test has detected a checksum error in nonvolatile random-access memory (NVRAM) parameters.

Correction: Reset the Access Server 316 to the factory settings by pulling out the power cord and reinserting it while pressing the system reset switch until E shows on the seven-segment display. If this fails to correct the problem, notify the network manager that the Access Server 316 must be returned to Cabletron Systems for repair or for replacement. Refer to the *Network Access Software Problem Solving* guide for information about returning the unit to Cabletron Systems.

Seven-Segment Display Shows a “3”

If the seven-segment display has a “3” after power up, the Access Server 316 has a downline loading problem.

To isolate and diagnose the problem, do the following:

1. Connect a terminal to the console port of the Access Server 316, then power up the terminal.
2. Configure the terminal to operate with a speed of 9600 bits per second and a character size of 8 bits (no parity). (Refer to the specific terminal user's guide if you need help setting up the terminal parameters.)
3. Initialize the Access Server 316 by pressing Ctrl / P on your console terminal.
4. Read the message that appears on the terminal display.

The conditions under which a “3” may appear in the seven-segment display, and the messages associated with each condition, are described in the following sections.

Downline Load Starts, Then Fails

Messages: The following messages may appear on the console terminal at various time intervals:

Local—912—[MOP] Load failure, timeout

Local—953—[IP] Attempting to locate load host, [ETHERNET]

Local—953—[MOP] Attempting to locate load host, [ISO8802]

Local—953—[MOP] Attempting to locate load host, [ETHERNET]

Local—955—[MOP] Host xx-xx-xx-xx-xx-xx LOCATED [ETHERNET]

Local—956—[MOP] Requesting load from host xx-xx-xx-xx-xx-xx

Problem: The host system failed to complete the downline load to the Access Server 316.

Correction: Copy the error message exactly as it appears on the console terminal display and notify the network manager. For more information, refer to the *Network Access Software Problem Solving* guide.

Downline Load Does Not Start

Messages: The following sequence of messages appears on the console terminal at various time intervals:

Local—951—Network access server will retry operation in *n* seconds

Local—953—[IP] Attempting to locate load host, [ETHERNET]

Local—953—[MOP] Attempting to locate load host, [ISO8802]

Local—953—[MOP] Attempting to locate load host, [ETHERNET]

Problem: Load hosts are not responding to the Access Server 316 downline load request within the allotted timeout period.

Correction: Copy the error message exactly as it appears on the console terminal display and notify the network manager. For more information, refer to the *Network Access Software Problem Solving* guide.

Seven-Segment Display Codes

The following list shows the codes (in approximate font type) and describes the codes that will be displayed during the server internal self-test when the Access Server 316 goes through a power up and initialization.

Off — No power or display is broken

B — Initial power on

F — Initialization

E — Access Server 316 internal test

d — SIM 1 test

C — SIM 2 test

b — Access Server 316 internal test

A — Access Server 316 internal test

9 — Access Server 316 internal test

7 — Access Server 316 internal test

5 — NI external test

Ξ — Firmware loading from Flash RAM, or software re-programming Flash RAM

4 — Requesting load

3 — Load request backoff

2 — Loading

I — Requesting dump

O — Dumping

H — Hardware revision number incompatible with firmware revision number

N — No SIMs or wrong type SIMs installed

Rotating — Access Server 316 is operating correctly

Network Activity LED

The following table shows the connection status for each type of LED display.

Table 7-2. Network Activity LED

Ethernet Selected	Connection Status	LED Display
10BaseT	Open / incorrectly terminated	OFF
	Correctly terminated / no network activity	ON
	Correctly terminated / network activity	FLASHING (Rate independent of network activity)
Standard Ethernet	Open	OFF
	Correctly connected / no network activity	OFF
	Correctly connected / network activity	Flashing or ON, depending on network activity